

CLAIMS

1. A fastening structure for an engine, the engine including a cylinder block having a cylinder bore and a cylinder head assembled with the cylinder block, the structure being **characterized in that**:

the cylinder block is divided into a cylinder inner wall portion defining the cylinder bore and a cylinder outer wall portion surrounding the cylinder inner wall portion, wherein the cylinder inner wall portion has an integrated upper deck portion, the upper deck portion having a receiving surface on which the cylinder head is placed, and

wherein the cylinder head is fastened to the upper deck portion with a first bolt, the cylinder outer wall portion is fastened to the upper deck portion with a second bolt at an opposite side of the upper deck portion with respect to the cylinder head, and the second bolt fastens the cylinder outer wall portion to the upper deck from an opposite side of the upper deck portion with respect to the first bolt.

20 2. The fastening structure according to claim 1, **characterized in that** the first bolt and the second bolt are threaded to the upper deck portion from the opposite sides of the upper deck portion with respect to each other.

25 3. The fastening structure according to claim 1 or 2, **characterized in that** the first bolt and the second bolt are coaxial.

30 4. The fastening structure according to claim 3, **characterized in that** the upper deck portion has a common bolt threading hole, wherein the first bolt and the second bolt are threaded to the common bolt threading hole while opposing to each other.

5. The fastening structure according to any one of claims 1 to 4, **characterized in that** the cylinder head includes a through hole into which the first bolt is inserted, and the cylinder outer wall portion includes a through hole 5 into which the second bolt is inserted.

6. The fastening structure according to any one of claims 1 to 5, **characterized in that** the cylinder outer wall portion has an integrated crankcase portion, the engine has a 10 crankshaft and a crank cap for supporting the crankshaft, and the second bolt also functions as a bolt for fixing the crank cap to the crankcase portion.

7. An engine **characterized by**:

15 a cylinder head;
a cylinder block assembled with the cylinder head, wherein the cylinder block is divided into an inner block member and an outer block member, the inner block member having a cylinder inner wall portion defining a cylinder bore 20 and an upper deck portion integrally formed with the cylinder inner wall portion, the upper deck portion having a receiving surface on which the cylinder head is placed, and an opposite surface opposite of the receiving surface, the outer block member having a cylinder outer wall portion surrounding the 25 cylinder inner wall portion;

a first bolt that fastens the cylinder head to the upper deck portion such that the cylinder head contacts the receiving surface; and

30 a second bolt that fastens the cylinder outer wall portion to the upper deck portion such that the cylinder outer wall portion contacts the opposite surface, wherein the first bolt and the second bolt are threaded to the upper deck portion from the opposite sides of the upper deck portion with respect to each other.

8. The engine according to claim 7, **characterized in that** the first bolt and the second bolt are coaxial.

9. The engine according to claim 8, **characterized in that** the upper deck portion has a common bolt threading hole, wherein the first bolt and the second bolt are threaded to the common bolt threading hole while opposing to each other.

10. The engine according to any one of claims 7 to 9, **characterized in that** the cylinder head includes a through hole into which the first bolt is inserted, and the cylinder outer wall portion includes a through hole into which the second bolt is inserted.

15 11. The engine according to any one of claims 7 to 10, **characterized by** a crankshaft and a crank cap for supporting the crankshaft, wherein the outer block member includes a crankcase portion integrally formed with the cylinder outer wall portion, and the second bolt also functions as a bolt for 20 fixing the crank cap to the crankcase portion.